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EAS 134 (1999) (English): Cold rolled steel sections – Specification



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EAS 134:1999

ICS 77.140.01

HS 7216.91.00

EAST AFRICAN STANDARD

Cold rolled steel sections — Specification

EAST AFRICAN COMMUNITY

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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Cold rolled steel sections – Specification

1 Scope

This East African Standard specifies the dimensions and sectional properties of cold rolled steel sections of thickness up to 8 mm for use in structural applications. The sections are listed in Tables 4 to 12.

2 Nomenclature

The following nomenclature, standard in the industry, shall be used. Dimensions are usually in mm units and section properties in cm units.

| | | | | |
|---------|---|-------------------------------------------------|---|-----------------|
| B, C, D | - | dimensions of section | - | mm |
| T | - | sheet thickness | - | mm |
| P | - | distance from edge to section centre of gravity | - | mm |
| A | - | sectional area | - | cm ² |
| Z | - | section modulus of section I/p | - | cm ³ |
| I | - | second moment of area | - | cm ⁴ |
| r | - | radius of gyration of section $\sqrt{I/A}$ | - | mm |
| x, y | - | with reference to x or y axis | - | kg |
| w | - | mass per linear metre | - | m |
| L | - | length | - | m |

3 Dimensions and tolerance

a) Dimensions — Dimensions of sections shall be in accordance with the tables of this standard.

b) Tolerance — The deviation from straightness of any length shall not exceed, one six hundredth ($\frac{1}{600}$ th) of the length against a straight edge. Profile dimensions in the tables shall be correct, within 1.5 mm or 2 %, whichever is least. Right angle bends shall be within 1 %, except if this tolerance causes the profile dimension tolerances to be exceeded then, the dimensional tolerances shall govern. Angular tolerances may be exceeded to provide 'nesting' for shipment, with approval of the engineer. The sections shall be free from twist, and limited to 0.3° per metre.

Tolerances on lengths ordered shall be ± 5.0 mm maximum and no undersize is permitted. Inside bend radii for right angle bends shall typically be the thickness of the sheet. Higher strength steels having less ductility may require larger bend radii. Bends of 180° shall be bent flat as closely as possible. The bend radius may vary from that specified by 50 %. Cracks on the tension side of a bend are cause for rejection.

4 Compound sections

Compound sections may be formed by suitably connecting two or more simple sections. For example, an 'I' section can be made from two channels back-to-back, a tube from two inwardly lipped channels lip-to-lip, a 'T' from two angles, etc. Methods of joining sections are specified in clauses 29, 30 and 37 of KS 02-103 *Specification for the use of cold-formed steel structural members*.

Section properties of compound sections may be calculated using the properties of simple sections.

Compound sections shall be flush at matching joints within 2.0 mm.

5 Manufacture

5.1 Manufacture of steel — Unless otherwise agreed at the time of enquiry and order, the steel-making process shall be at the option of the manufacturer. If so requested in the order, the purchaser shall be informed about the steel-making process used.

5.2 Grade designation — The designation of the grades of material shall be based on minimum permissible yield stress and shall be in accordance with Table 1.

Table 1 — Grade designation

| Minimum yield stress, N/mm ² | Designation of grade |
|--------------------------------------------|----------------------|
| 210 | 210 |
| 250 | 250 |
| 360 | 360 |

5.3 Chemical composition — The results of ladle chemical analysis of steel from which a hollow section is manufactured shall comply with appropriate limits of Table 2.

For grade 360, it shall be permissible to add suitable grain-refining elements to achieve the minimum specified tensile stress, but the total content of these elements shall not exceed 0.15 %.

Table 2 — Ladle chemical analysis limits

| Grade of steel | Maximum content, % | | |
|----------------|-----------------------|-------------|---------|
| | Carbon | Phosphorous | Sulphur |
| 210 | 0.2 | 0.05 | 0.05 |
| 250 | 0.25 | 0.06 | 0.06 |
| 360 | | | 0.04 |

5.4 Mechanical properties – The mechanical properties obtained from test samples taken from the hollow section in accordance with 5.4, shall comply with Table 3. If other grades of steel are used, their mechanical properties shall be agreed on between the purchaser and the manufacturer.

Table 3 — Tensile test requirements

| Grade of steel | Minimum yield stress, N/mm ² | Ultimate tensile strength, N/mm ² | Minimum elongation as a proportion of gauge length, % |
|----------------|--------------------------------------------|----------------------------------------------------|----------------------------------------------------------------|
| 210 | 210 | 340 | 24 |
| 250 | 250 | 420 | 22 |
| 360 | 360 | 480 | 20 |

5.5 Sampling – At least one sample shall be selected from the following batch sizes:

- a 20 tonne or less batch of sections having outside diameter of less than 90 mm;
- a batch of less than 40 tonnes for all other sections.

If the test fails, two more samples shall be drawn from the batch and tested. If one or both test specimens re-tested fail, the whole batch shall be deemed not to have complied with the specification unless all sections in the batch are tested individually.

5.6 Test pieces - The test piece shall consist of a strip taken from the section. The strip shall be taken longitudinally at any point of the section except for welded sections when it shall not be taken from the weldzone. The strip shall comply with the following conditions:

- sides of the test piece shall be parallel within a maximum variation, along parallel length, of $\pm 0.2\%$ of nominal width;
- the tripped ends and parallel lengths of the test piece shall be coaxial;
- $Lo = 5.65 \sqrt{A}$ and shall be within $\pm 5\%$ of the nominal value.

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where

Lo is the gauge length, and

A is the sectional area.

- d) minimum parallel length $L_p = Lo + 2D$ for circular sections, and $L_p = Lo + 2$ nominal width for square or rectangular sections

where,

Lo is the gauge length;

- e) the width of the test piece shall not be less than 6 mm, unless the product width precludes use of wider pieces;
- f) the test piece shall not be flattened and machined between the gauge marks except for the purposes of gripping the test piece in a test machine.

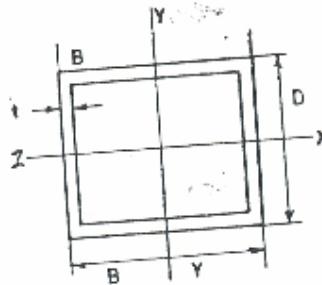
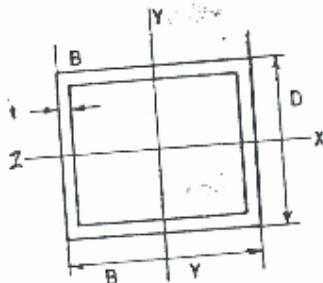


Table 4 — Dimensions and properties for cold rolled square hollow sections

| Size B x D mm | Thickness, t, mm | A cm ² | Mass, w, kg/m | Axis X-X and Y-Y | | |
|---------------------|---------------------|----------------------|------------------|--------------------------------|--------------------------------|-------------------|
| | | | | $I_x = I_y$ cm ⁴ | $Z_x = Z_y$ cm ³ | $r_x = r_y$ cm |
| 12 x 12 | 1.2 | 0.51 | 0.41 | 0.102 | 0.170 | 0.44 |
| 12 x 12 | 1.5 | 0.63 | 0.49 | 0.118 | 0.196 | 0.43 |
| 14 x 14 | 1.2 | 0.61 | 0.48 | 0.169 | 0.241 | 0.52 |
| 14 x 14 | 1.5 | 0.75 | 0.59 | 0.196 | 0.283 | 0.51 |
| 15 x 15 | 1.2 | 0.66 | 0.52 | 0.211 | 0.282 | 0.56 |
| 15 x 15 | 1.5 | 0.81 | 0.64 | 0.250 | 0.330 | 0.56 |
| 15 x 15 | 2 | 1.04 | 0.82 | 0.299 | 0.399 | 0.54 |
| 16 x 16 | 1.2 | 0.71 | 0.56 | 0.261 | 0.326 | 0.60 |
| 16 x 16 | 1.5 | 0.87 | 0.68 | 0.308 | 0.385 | 0.59 |
| 16 x 16 | 2 | 1.12 | 0.88 | 0.373 | 0.466 | 0.57 |
| 20 x 20 | 1.2 | 0.90 | 0.71 | 0.533 | 0.533 | 0.77 |

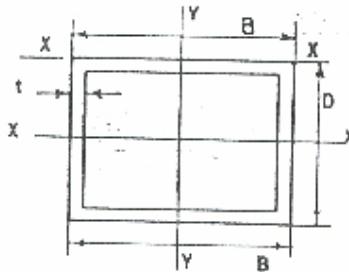
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Table 4 (continued)



| Size B X D mm | Thickness, t, mm | A cm ² | Mass, w, kg/m | Axis X-X AND Y-Y | | |
|---------------------|---------------------|----------------------|------------------|--------------------------------|--------------------------------|-------------------|
| | | | | $I_x = I_y$ cm ⁴ | $Z_x = Z_y$ cm ³ | $r_x = r_y$ cm |
| 20 x 20 | 1.5 | 1.11 | 0.87 | 0.637 | 0.637 | 0.75 |
| 20 X 20 | 2 | 1.44 | 1.13 | 0.787 | 0.787 | 0.73 |

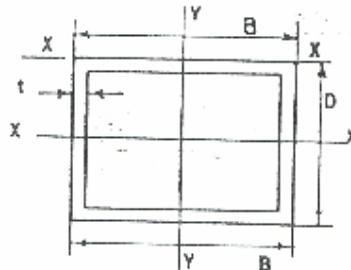
Table 4 (continued)



| Size B X D mm | Thickness, t, mm | A cm ² | Mass, w, kg/m | Axis X-X AND Y-Y | | |
|---------------------|---------------------|----------------------|------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
| | | | | I _x = I _y cm ⁴ | Z _x = Z _y cm ³ | r _x = r _y cm |
| 22 X 22 | 1.2 | 0.99 | 0.78 | 0.722 | 0.656 | 0.85 |
| 22 X 22 | 1.5 | 1.23 | 0.97 | 0.866 | 0.787 | 0.83 |
| 22 X 22 | 2 | 1.60 | 1.26 | 1.077 | 0.979 | 0.82 |
| 25 X 25 | 1.2 | 1.14 | 0.90 | 1.081 | 0.864 | 0.97 |
| 25 X 25 | 1.5 | 1.41 | 1.11 | 1.303 | 1.042 | 0.96 |
| 25 X 25 | 2 | 1.84 | 1.44 | 1.634 | 1.307 | 0.94 |
| 25 X 25 | 3 | 2.64 | 2.07 | 2.169 | 1.735 | 0.90 |
| 30 X 30 | 1.2 | 1.38 | 1.08 | 2.297 | 1.531 | 1.29 |
| 30 X 30 | 1.5 | 1.71 | 1.34 | 2.321 | 1.547 | 1.16 |

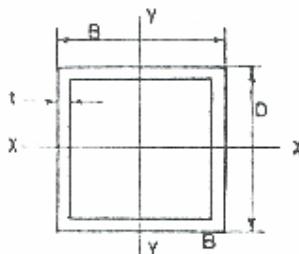
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Table 4 (continued)



| Size B X D mm | Thickness, t, mm | A cm ² | Mass, w, kg/m | Axis X-X AND Y-Y | | |
|---------------------|---------------------|----------------------|------------------|--------------------------------|--------------------------------|-------------------|
| | | | | $I_x = I_y$ cm ⁴ | $Z_x = Z_y$ cm ³ | $r_x = r_y$ cm |
| 30 X 30 | 2 | 2.24 | 1.75 | 2.941 | 1.960 | 1.14 |
| 30 X 30 | 3 | 3.24 | 2.54 | 3.985 | 2.656 | 1.11 |
| 40 X 40 | 1,2 | 1.86 | 1.46 | 4.677 | 2.338 | 1.58 |
| 40 X 40 | 1,5 | 2.31 | 1.81 | 5.715 | 2.857 | 1.57 |
| 40 X 40 | 2 | 3.04 | 2.39 | 7.336 | 3.668 | 1.55 |
| 40 X 40 | 3 | 4.44 | 3.48 | 10.190 | 5.095 | 1.51 |
| 45 X 45 | 1,2 | 2.10 | 1.65 | 6.727 | 2.989 | 1.79 |
| 45 X 45 | 1,5 | 2.61 | 2.05 | 8.241 | 3.662 | 1.77 |
| 45 X 45 | 2 | 3.44 | 2.70 | 10.62 | 4.721 | 1.75 |
| 45 X 45 | 3 | 5.04 | 3.96 | 14.89 | 6.617 | 1.71 |

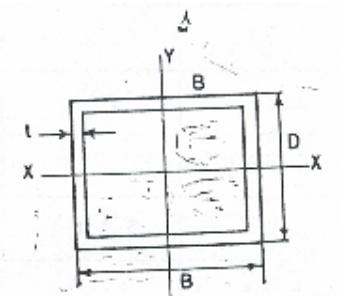
Table 4 (continued)



| Size B X D mm | Thickness, t, mm | A cm ² | Mass, w, kg/m | Axis X-X AND Y-Y | | |
|---------------------|---------------------|----------------------|------------------|--------------------------------|--------------------------------|-------------------|
| | | | | $I_x = I_y$ cm ⁴ | $Z_x = Z_y$ cm ³ | $r_x = r_y$ cm |
| 50 X 50 | 1.2 | 2.34 | 1.84 | 9.30 | 3.720 | 1.99 |
| 50 X 50 | 1.5 | 2.91 | 2.28 | 11.42 | 4.568 | 1.98 |
| 50 X 50 | 3 | 3.84 | 3.01 | 14.77 | 5.908 | 1.96 |
| 50 X 50 | 3 | 5.64 | 4.43 | 20.85 | 8.340 | 1.92 |
| 50 X 50 | 4 | 7.36 | 5.78 | 26.15 | 10.460 | 1.88 |
| 60 X 60 | 1.5 | 3.51 | 2.75 | 20.03 | 6.67 | 2.38 |
| 60 X 60 | 2 | 4.64 | 3.64 | 26.04 | 8.68 | 2.37 |
| 60 X 60 | 3 | 6.84 | 5.37 | 37.14 | 12.38 | 2.33 |
| 60 X 60 | 4 | 8.96 | 7.03 | 37.07 | 15.69 | 2.29 |
| 75 X 75 | 1.5 | 4.41 | 3.46 | 39.72 | 10.59 | 3.00 |

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Table 4 (continued)



| Size B x D mm | Thickness, t, mm | A cm ² | Mass, w, kg/m | Axis X-X AND Y-Y | | |
|---------------------|---------------------|----------------------|------------------|--------------------------------|--------------------------------|-------------------|
| | | | | $I_x = I_y$ cm ⁴ | $Z_x = Z_y$ cm ³ | $r_x = r_y$ cm |
| 75 x 75 | 2 | 5.84 | 4.58 | 51.91 | 13.84 | 2.98 |
| 75 x 75 | 3 | 8.64 | 6.78 | 74.78 | 19.94 | 2.94 |
| 75 x 75 | 4 | 11.36 | 8.92 | 95.75 | 25.53 | 2.90 |
| 75 x 75 | 5 | 14.00 | 11.00 | 114.92 | 30.65 | 2.87 |
| 75 x 75 | 6 | 16.56 | 13.00 | 132.40 | 35.31 | 2.83 |
| 100 x 100 | 3 | 11.64 | 9.14 | 182.70 | 36.54 | 3.96 |
| 100 x 100 | 4 | 15.52 | 12.18 | 236.34 | 47.26 | 3.91 |
| 100 x 100 | 5 | 19.00 | 14.92 | 286.58 | 57.32 | 3.88 |
| 100 x 100 | 6 | 22.56 | 17.71 | 333.59 | 66.72 | 3.85 |
| 120 x 120 | 3 | 14.04 | 11.02 | 320.53 | 53.42 | 4.77 |
| 120 x 120 | 4 | 18.56 | 14.57 | 416.73 | 69.45 | 4.75 |
| 120 x 120 | 6 | 27.36 | 21.48 | 594.26 | 99.04 | 4.66 |
| 125 x 125 | 3 | 14.64 | 11.49 | 136.39 | 58.14 | 3.05 |
| 125 X 125 | 4 | 19.36 | 15.20 | 172.93 | 75.67 | 4.94 |
| 125 X 125 | 5 | 24.00 | 18.84 | 577.00 | 92.32 | 4.90 |
| 125 X 125 | 6 | 28.56 | 22.42 | 675.78 | 108.12 | 4.86 |
| 150 X 150 | 4 | 23.56 | 18.34 | 830.53 | 110.74 | 5.96 |
| 150 X 150 | 5 | 29.00 | 22.76 | 1017.42 | 135.66 | 5.92 |
| 150 X 150 | 6 | 34.56 | 27.13 | 1196.47 | 159.53 | 5.88 |
| 150 X 150 | 8 | 45.44 | 35.67 | 1531.93 | 204.26 | 5.81 |

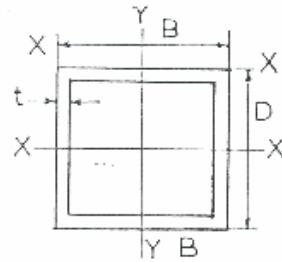


Table 5 — Dimensions and properties for cold rolled rectangular hollow sections

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 35 X 10 | 1.2 | 1.01 | 0.80 | 1.72 | 0.34 | 0.412 | 1.37 | 0.78 | 1.16 |
| 35 x 10 | 1.5 | 1.26 | 0.99 | 2.00 | 0.40 | 0.387 | 1.66 | 0.94 | 1.14 |
| 35 x 10 | 2 | 1.64 | 1.29 | 2.35 | 0.47 | 0.374 | 2.08 | 1.18 | 1.13 |
| 35 x 15 | 1.2 | 1.14 | 0.90 | 0.44 | 0.58 | 0.616 | 1.72 | 0.98 | 1.23 |
| 35 x 15 | 1.5 | 1.41 | 1.11 | 0.52 | 0.69 | 0.607 | 2.08 | 1.18 | 1.21 |
| 35 x 15 | 2 | 1.83 | 1.44 | 0.64 | 0.85 | 0.591 | 0.62 | 1.49 | 1.20 |
| 35 x 15 | 3 | 2.90 | 2.07 | 0.80 | 1.06 | 0.519 | 3.53 | 2.01 | 1.10 |
| 35 x 25 | 1.2 | 1.37 | 1.08 | 1.42 | 1.13 | 1.014 | 2.40 | 1.37 | 1.32 |
| 35 x 25 | 1.5 | 1.70 | 1.34 | 1.71 | 1.36 | 1.002 | 2.92 | 1.66 | 1.31 |
| 35 x 25 | 2 | 2.24 | 1.76 | 2.16 | 1.72 | 0.979 | 3.71 | 2.12 | 1.29 |
| 35 x 25 | 3 | 3.23 | 2.54 | 2.89 | 2.31 | 0.943 | 5.07 | 2.89 | 1.25 |
| 35 x 30 | 1.2 | 1.50 | 1.18 | 2.16 | 1.44 | 1.200 | 2.75 | 1.57 | 1.35 |
| 35 x 30 | 1.5 | 1.85 | 1.46 | 2.62 | 1.74 | 1,187 | 3.34 | 1.90 | 1.34 |
| 35 x 30 | 2 | 2.43 | 1.91 | 3.33 | 2.22 | 1.170 | 4.26 | 2.43 | 1.32 |
| 35 x 30 | 3 | 3.54 | 2.78 | 4.53 | 3.02 | 1.126 | 5.84 | 3.33 | 1.28 |

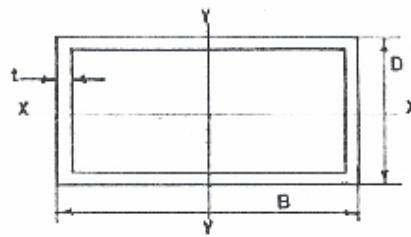


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 40 X 10 | 1.2 | 1.14 | 0.90 | 0.19 | 0.38 | 0.408 | 1.96 | 0.98 | 1.31 |
| 40 x 10 | 1.5 | 1.41 | 1.11 | 0.22 | 0.44 | 0.392 | 2.37 | 1.18 | 1.30 |
| 40 x 10 | 2 | 1.83 | 1.44 | 0.26 | 0.52 | 0.377 | 3.00 | 1.50 | 1.28 |
| 40 x 20 | 1.2 | 1.37 | 1.08 | 0.95 | 0.95 | 0.832 | 2.87 | 1.43 | 1.44 |
| 40 x 20 | 1.5 | 1.70 | 1.34 | 1.15 | 1.15 | 0.819 | 3.49 | 1.74 | 1.43 |
| 40 x 20 | 2 | 2.24 | 1.76 | 1.76 | 1.43 | 0.796 | 4.44 | 2.22 | 1.41 |
| 40 x 20 | 3 | 3.23 | 2.54 | 1.88 | 1.88 | 0.763 | 6.08 | 3.04 | 1.37 |
| 40 x 25 | 1.2 | 1.50 | 1.18 | 1.59 | 1.27 | 1.029 | 3.32 | 1.66 | 1.49 |
| 40 x 25 | 1.5 | 1.85 | 1.46 | 1.92 | 1.53 | 1.018 | 4.04 | 2.02 | 1.48 |
| 40 x 25 | 2 | 2.43 | 1.91 | 2.43 | 1.94 | 1.000 | 5.16 | 2.58 | 1.46 |
| 40 x 25 | 3 | 3.59 | 2.78 | 3.26 | 2.60 | 0.959 | 7.11 | 3.55 | 1.42 |
| 40 x 35 | 1.2 | 1.74 | 1.37 | 3.43 | 1.96 | 1.403 | 4.22 | 2.11 | 1.56 |
| 40 x 35 | 1.5 | 2.15 | 1.69 | 4.18 | 2.38 | 1.394 | 5.15 | 2.57 | 1.55 |
| 40 x 35 | 2 | 2.84 | 2.23 | 5.35 | 3.05 | 1.372 | 6.61 | 3.30 | 1.53 |
| 40 x 35 | 3 | 4.14 | 3.25 | 7.38 | 4.21 | 1.335 | 9.16 | 4.58 | 1.49 |

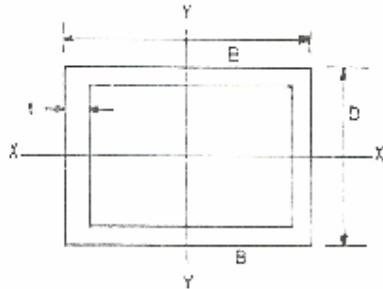


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 45 X 15 | 1.2 | 1.37 | 1.08 | 0.55 | 0.73 | 0.634 | 3.27 | 1.45 | 1.54 |
| 45 x 15 | 1.5 | 1.70 | 1.34 | 0.66 | 0.88 | 0.623 | 3.98 | 1.76 | 1.53 |
| 45 x 30 | 1.2 | 1.74 | 1.37 | 2.66 | 1.77 | 1.236 | 5.00 | 2.22 | 1.69 |
| 45 x 30 | 1.5 | 2.15 | 1.69 | 3.23 | 2.15 | 1.226 | 6.11 | 2.71 | 1.68 |
| 45 x 30 | 2 | 2.84 | 2.23 | 4.11 | 2.74 | 1.203 | 7.84 | 3.48 | 1.66 |
| 45 x 30 | 3 | 4.14 | 3.25 | 5.63 | 3.75 | 1.166 | 10.91 | 4.84 | 1.62 |
| 50 x 10 | 1.2 | 1.37 | 1.08 | 0.24 | 0.48 | 0.419 | 3.58 | 1.43 | 1.61 |
| 50 x 10 | 1.5 | 1.70 | 1.34 | 0.28 | 0.56 | 0.405 | 4.36 | 1.74 | 1.60 |
| 50 x 10 | 2 | 2.24 | 1.76 | 0.33 | 0.66 | 0.383 | 5.54 | 2.21 | 1.58 |
| 50 x 10 | 3 | 3.23 | 2.54 | 0.39 | 0.78 | 0.347 | 7.57 | 3.02 | 1.53 |
| 50 x 15 | 1.2 | 1.50 | 1.18 | 0.61 | 0.81 | 0.637 | 4.31 | 1.72 | 1.69 |
| 50 x 15 | 1.5 | 1.85 | 1.46 | 0.72 | 0.96 | 0.624 | 5.24 | 2.10 | 1.68 |
| 50 x 15 | 2 | 2.44 | 1.92 | 0.89 | 1.18 | 0.604 | 6.70 | 2.68 | 1.66 |
| 50 x 15 | 3 | 3.54 | 2.78 | 1.13 | 1.50 | 0.565 | 9.23 | 3.62 | 1.62 |

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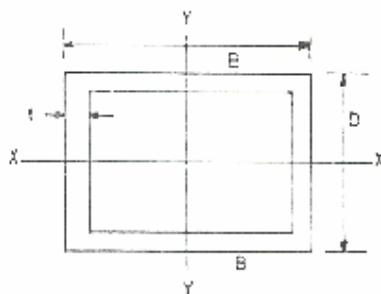


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 50 X 25 | 1.2 | 1.74 | 1.37 | 1.93 | 1.54 | 1.053 | 5.72 | 2.28 | 1.81 |
| 50 x 25 | 1.5 | 2.15 | 1.69 | 2.34 | 1.87 | 1.043 | 7.00 | 2.80 | 1.80 |
| 50 x 25 | 2 | 2.84 | 2.23 | 2.96 | 2.36 | 1.021 | 9.00 | 3.60 | 1.78 |
| 50 x 25 | 3 | .14 | 3.25 | 3.99 | 3.19 | 0.981 | 12.55 | 5.02 | 1.74 |
| 50 x 30 | 1.2 | 1.85 | 1.46 | 2.91 | 1.94 | 1.254 | 6.44 | 2.57 | 1.86 |
| 50 x 30 | 1.5 | 2.30 | 1.81 | 3.54 | 2.36 | 1.241 | 7.88 | 3.15 | 1.85 |
| 50 x 30 | 2 | 3.04 | 2.39 | 4.51 | 3.00 | 1.218 | 10.16 | 4.06 | 1.82 |
| 50 x 30 | 3 | 4.43 | 3.48 | 6.18 | 4.12 | 1.181 | 14.21 | 5.68 | 1.79 |
| 50 x 40 | 1.2 | 2.10 | 1.65 | 5.58 | 2.79 | 1.630 | 7.87 | 3.14 | 1.93 |
| 50 x 40 | 1.5 | 2.16 | 2.05 | 6.82 | 3.14 | 1.617 | 9.65 | 3.86 | 1.92 |
| 50 x 40 | 2 | 3.43 | 2.70 | 8.78 | 4.39 | 1.600 | 12.46 | 4.98 | 1.90 |
| 50 x 40 | 3 | 5.03 | 3.95 | 12.25 | 6.12 | 1.560 | 17.53 | 7.01 | 1.86 |
| 55 x 10 | 1.2 | 1.50 | 1.18 | 0.26 | 0.52 | 0.416 | 4.64 | 1.68 | 1.76 |
| 55 x 10 | 1.5 | 1.5 | 1.46 | 0.30 | 0.60 | 0.402 | 5.66 | 2.05 | 1.75 |

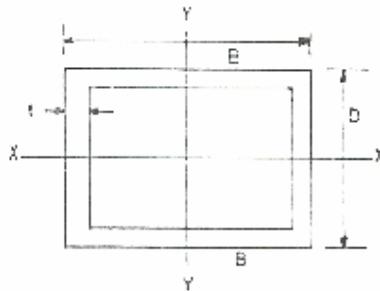


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 55 x 10 | 2 | 2.43 | 1.91 | 0.36 | 0.72 | 0.384 | 7.23 | 2.62 | 1.72 |
| 55 x 10 | 3 | 3.54 | 2.78 | 0.43 | 0.86 | 0.348 | 9.94 | 3.61 | 1.68 |
| 55 x 20 | 1.2 | 1.74 | 1.37 | 1.27 | 1.27 | 0.853 | 6.38 | 2.32 | 1.92 |
| 55 x 20 | 1.5 | 2.15 | 1.69 | 1.53 | 1.53 | 0.843 | 7.80 | 2.83 | 1.90 |
| 55 x 20 | 2 | 2.84 | 2.23 | 1.92 | 1.92 | 0.822 | 10.04 | 3.65 | 1.88 |
| 55 x 20 | 3 | 4.14 | 3.25 | 2.54 | 2.54 | 0.784 | 14.00 | 5.09 | 1.84 |
| 55 x 25 | 1.2 | 1.85 | 1.46 | 2.10 | 1.68 | 1.610 | 7.25 | 2.63 | 1.98 |
| 55 x 25 | 1.5 | 2.30 | 1.81 | 2.54 | 2.03 | 1.510 | 8.88 | 3.22 | 1.97 |
| 55 x 25 | 2 | 3.04 | 2.39 | 3.22 | 2.57 | 1.020 | 11.44 | 4.16 | 1.94 |
| 55 x 25 | 3 | 4.43 | 3.48 | 4.36 | 3.48 | 0.991 | 16.03 | 5.82 | 1.90 |
| 55 x 35 | 1.2 | 2.10 | 1.65 | 4.46 | 2.54 | 1.457 | 8.99 | 3.26 | 2.07 |
| 55 x 35 | 1.5 | 2.61 | 2.05 | 5.45 | 3.11 | 1.445 | 11.00 | 4.00 | 2.05 |
| 55 X 35 | 2 | 3.43 | 2.70 | 6.98 | 3.98 | 1.410 | 14.25 | 5.18 | 2.04 |
| 55 X 35 | 3 | 5.03 | 3.95 | 9.69 | 5.53 | 1.388 | 20.09 | 7.30 | 2.00 |

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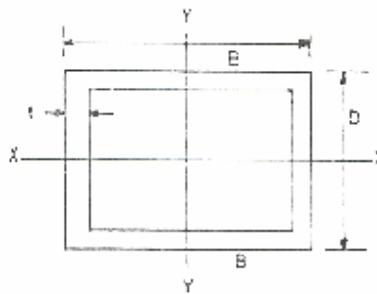


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 55 x 45 | 1.2 | 2.34 | 1.84 | 7.87 | 3.49 | 1.831 | 10.72 | 3.89 | 2.13 |
| 55 x 45 | 1.5 | 2.90 | 2.28 | 9.66 | 4.29 | 1.822 | 13.17 | 4.78 | 2.12 |
| 55 x 45 | 2 | 3.83 | 3.01 | 12.47 | 5.54 | 1.802 | 17.06 | 6.20 | 2.10 |
| 55 x 45 | 3 | 5.64 | 4.43 | 17.54 | 7.79 | 1.762 | 24.15 | 8.78 | 2.07 |
| 60 x 15 | 1.2 | 1.74 | 1.34 | 0.72 | 0.96 | 0.645 | 6.93 | 2.31 | 1.99 |
| 60 x 15 | 1.5 | 2.15 | 1.69 | 0.86 | 1.14 | 0.635 | 8.48 | 2.82 | 1.98 |
| 60 x 15 | 2 | 2.84 | 2.23 | 1.06 | 1.41 | 0.610 | 10.90 | 3.63 | 1.96 |
| 60 x 15 | 3 | 4.14 | 3.25 | 1.35 | 1.80 | 0.572 | 15.19 | 5.06 | 1.92 |
| 60 x 20 | 1.2 | 1.85 | 1.46 | 1.38 | 1.38 | 0.863 | 7.97 | 2.65 | 2.08 |
| 60 x 20 | 1.5 | 2.30 | 1.81 | 1.66 | 1.66 | 0.850 | 9.76 | 3.25 | 2.06 |
| 60 x 20 | 2 | 3.04 | 2.39 | 2.08 | 2.08 | 0.827 | 12.58 | 4.19 | 2.03 |
| 60 x 20 | 3 | 4.43 | 3.48 | 2.76 | 2.76 | 0.790 | 17.62 | 5.87 | 1.99 |
| 60 X 30 | 1.2 | 2.10 | 1.65 | 3.40 | 2.26 | 1.271 | 10.04 | 3.34 | 2.18 |
| 60 X 30 | 1.5 | 2.61 | 2.05 | 4.15 | 2.76 | 1.261 | 12.33 | 4.11 | 2.17 |

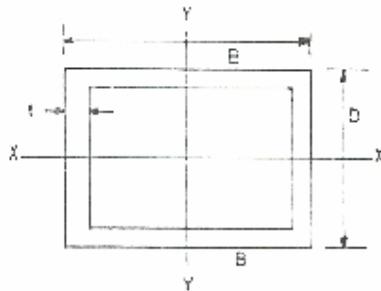


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 60 x 30 | 1,2 | 3,43 | 2,70 | 5,29 | 3,52 | 1,244 | 15,94 | 5,31 | 2,15 |
| 60 x 30 | 1,5 | 5,03 | 3,95 | 7,27 | 4,84 | 1,201 | 22,50 | 7,50 | 2,12 |
| 60 x 40 | 2 | 2,34 | 1,84 | 12,47 | 3,24 | 1,661 | 12,12 | 4,04 | 2,27 |
| 60 x 40 | 3 | 2,90 | 2,28 | 17,54 | 3,96 | 1,651 | 14,89 | 4,96 | 2,26 |
| 60 x 40 | 1,2 | 3,83 | 3,01 | 0,72 | 5,11 | 1,631 | 19,31 | 6,43 | 2,24 |
| 60 x 40 | 1,5 | 6,64 | 4,43 | 0,86 | 7,10 | 1,592 | 27,38 | 9,12 | 2,21 |
| 60 x 40 | 2 | 7,36 | 5,78 | 1,06 | 8,90 | 1,573 | 34,50 | 11,50 | 2,16 |
| 65 x 25 | 3 | 2,10 | 1,65 | 1,35 | 1,95 | 1,780 | 11,01 | 3,38 | 2,29 |
| 65 x 25 | 1,2 | 2,61 | 2,05 | 1,38 | 2,36 | 1,620 | 13,52 | 4,16 | 2,27 |
| 65 x 25 | 1,5 | 3,43 | 2,70 | 1,66 | 3,00 | 1,040 | 17,49 | 5,38 | 2,25 |
| 65 x 25 | 2 | 5,03 | 3,95 | 2,08 | 4,07 | 1,000 | 24,69 | 7,59 | 2,22 |
| 65 x 25 | 3 | 6,56 | 5,15 | 2,76 | 4,89 | 0,695 | 30,97 | 9,52 | 2,18 |
| 65 X 30 | 1,2 | 2,21 | 1,74 | 3,40 | 2,43 | 1,277 | 12,23 | 3,76 | 2,36 |
| 65 X 30 | 1,5 | 2,76 | 2,17 | 4,15 | 2,96 | 1,267 | 15,03 | 4,62 | 2,33 |

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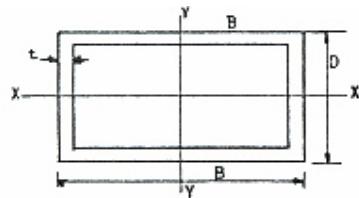


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 65 x 30 | 2 | 3.64 | 2.86 | 5.69 | 3.79 | 1.267 | 19.47 | 5.99 | 2.31 |
| 65 x 30 | 3 | 5.33 | 4.19 | 7.82 | 5.21 | 1.209 | 27.58 | 8.48 | 2.27 |
| 65 x 30 | 4 | 6.95 | 5.46 | 9.56 | 6.37 | 1.163 | 34.70 | 10.67 | 2.23 |
| 65 x 35 | 1,2 | 2.34 | 1.84 | 5.15 | 2.94 | 1.482 | 13.45 | 4.18 | 2.40 |
| 65 x 35 | 1,5 | 2.90 | 2.28 | 6.29 | 3.59 | 1.471 | 16.54 | 5.08 | 2.39 |
| 65 x 35 | 2 | 3.83 | 3.01 | 8.08 | 4.61 | 1.451 | 21.46 | 6.60 | 2.37 |
| 65 X 35 | 3 | 5.64 | 4.43 | 11.23 | 6.41 | 1.412 | 30.46 | 9.37 | 2.32 |
| 65 X 35 | 4 | 7.36 | 5.78 | 13.87 | 7.92 | 1.373 | 38.43 | 11.82 | 2.29 |
| 70 x 20 | 1,2 | 2.10 | 1.65 | 1.59 | 1.59 | 0.870 | 11.85 | 3.38 | 2.38 |
| 70 x 20 | 1,5 | 2.60 | 2.05 | 1.92 | 1.92 | 0.859 | 14.55 | 4.15 | 2.36 |
| 70 x 20 | 2 | 3.43 | 2.70 | 2.41 | 2.41 | 0.838 | 18.83 | 5.38 | 2.34 |
| 70 x 20 | 3 | 5.03 | 3.95 | 3.20 | 3.20 | 0.798 | 26.58 | 7.59 | 2.30 |
| 70 x 20 | 4 | 6.56 | 5.15 | 3.77 | 3.77 | 0.758 | 33.33 | 9.52 | 2.25 |

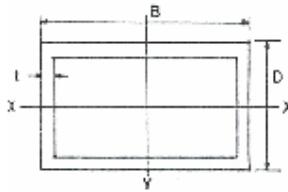


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 70 x 30 | 1,2 | 2.34 | 1.84 | 3.90 | 2.60 | 1.291 | 14.89 | 4.19 | 2.49 |
| 70 x 30 | 1,5 | 2.90 | 2.29 | 4.76 | 3.17 | 1.281 | 18. | 5.16 | 2.49 |
| 70 x 30 | 2 | 3.83 | 3.01 | 6.08 | 4.05 | 1.289 | 23.45 | 6.70 | 2.48 |
| 70 x 30 | 3 | 5.84 | 4.43 | 8.37 | 5.58 | 1.209 | 33.3 | 9.52 | 2.43 |
| 70 x 30 | 4 | 7.36 | 5.78 | 10.24 | 6.82 | 1.170 | 42.15 | 12.01 | 2.39 |
| 70 x 50 | 1,2 | 2.82 | 2.22 | 12.16 | 4.86 | 2.380 | 20, | 5.82 | 2.69 |
| 70 x 50 | 1,5 | 3.51 | 2.76 | 14.94 | 5.97 | 2.320 | 25.11 | 7.17 | 2.67 |
| 70 x 50 | 2 | 4.64 | 3.64 | 19.33 | 7.75 | 2.221 | 32.7 | 9.34 | 2.66 |
| 70 x 50 | 3 | 6.84 | 5.37 | 27.43 | 10.99 | 2.093 | 46.79 | 13.36 | 2.62 |
| 70 x 50 | 4 | 8.95 | 7.03 | 34.63 | 13.85 | 1.968 | 59.51 | 17.00 | 2.58 |
| 75 x 50 | 2 | 9.34 | 7.33 | 20.53 | 8.21 | 1.48 | 38.53 | 10.29 | 2.03 |
| 75 x 50 | 2,5 | 6.00 | 4.71 | 24.97 | 9.99 | 2.04 | 47.16 | 12.58 | 2.80 |
| 75 x 50 | 3 | 7.14 | 5.60 | 29.14 | 11.66 | 2.02 | 55.83 | 14.75 | 2.78 |
| 75 x 50 | 4 | 9.36 | 7.34 | 35.76 | 14.70 | 1.98 | 70.51 | 18.80 | 2.74 |
| 75 x 50 | 5 | 11.50 | 9.03 | 43.46 | 17.38 | 1.94 | 84.24 | 22.46 | 2.71 |
| 80 X 80 | 1,2 | 2.34 | 1.84 | 1.80 | 1.80 | 0.876 | 16.79 | 4.19 | 2.68 |
| 80 X 80 | 1,5 | 2.90 | 2.28 | 2.18 | 2.18 | 0.867 | 20.65 | 5.16 | 2.67 |
| 80 X 80 | 2 | 3.83 | 3.01 | 2.73 | 2.73 | 0.844 | 26.80 | 6.70 | 2.64 |
| 80 X 80 | 3 | 5.64 | 4.43 | 3.64 | 3.64 | 0.803 | 39.05 | 9.51 | 2.60 |
| 80 X 80 | 4 | 7.36 | 5.78 | 4.29 | 4.29 | 0.765 | 48.29 | 12.00 | 2.56 |

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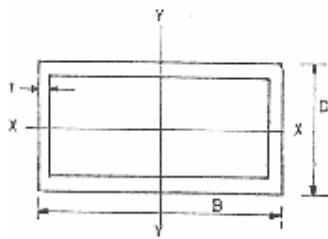


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 80 X 40 | 1.5 | 3.51 | 2.76 | 10.16 | 5.08 | 1.700 | 29.90 | 7.47 | 2.92 |
| 80 X 40 | 2 | 4.63 | 3.64 | 13.11 | 6.55 | 1.681 | 38.97 | 9.47 | 2.90 |
| 80 X 40 | 3 | 6.84 | 5.37 | 18.42 | 9.21 | 1.640 | 55.85 | 13.96 | 2.86 |
| 80 X 40 | 4 | | | | 11.80 | | | | |
| 80 X 60 | 1.5 | 4.11 | 3.23 | 25.16 | 3.38 | 2.472 | 39.14 | 9.79 | 3.08 |
| 80 X 60 | 2 | 5.43 | 4.27 | 32.77 | 10.92 | 2.460 | 51.14 | 12.78 | 3.07 |
| 80 X 60 | 3 | 8.03 | 6.31 | 46.89 | 15.63 | 2.420 | 73.64 | 18.41 | 3.03 |
| 80 X 60 | 4 | 10.56 | 8.29 | 59.63 | 19.87 | 2.379 | 94.25 | 23.56 | 2.99 |
| 90 x 30 | 1.5 | 3.51 | 2.76 | 5.97 | 3.98 | 1.303 | 34.08 | 7.57 | 3.12 |
| 90 x 30 | 2 | 4.63 | 3.64 | 7.65 | 5.10 | 1.284 | 44.43 | 9.87 | 3.09 |
| 90 x 30 | 3 | 6.84 | 5.37 | 10.57 | 7.04 | 1.240 | 63.70 | 14.15 | 3.05 |
| 90 x 30 | 4 | 8.95 | 7.03 | 12.57 | 8.64 | 1.204 | 81.16 | 18.03 | 3.00 |
| 100 x 20 | 1.5 | 3.51 | 2.76 | 2.69 | 2.69 | 0.875 | 37.37 | 7.47 | 3.26 |
| 100 x 20 | 2 | 4.63 | 3.64 | 3.28 | 3.38 | 0.854 | 48.70 | 9.74 | 3.24 |
| 100 x 20 | 3 | 6.84 | 5.37 | 4.51 | 4.51 | 0.812 | 69.76 | 13.95 | 3.19 |

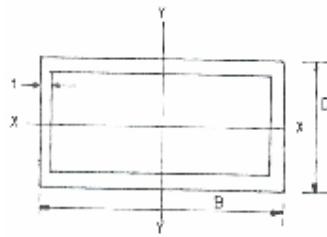


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 100 x 20 | 4 | 8.95 | 7.03 | 5.34 | 5.34 | 0.772 | 88.69 | 17.75 | 3.15 |
| 100 x 40 | 2 | 5.43 | 4.27 | 16.00 | 8.00 | 1.714 | 67.91 | 13.58 | 3.54 |
| 100 x 40 | 3 | 8.03 | 6.31 | 22.54 | 11.27 | 1.672 | 98.00 | 19.60 | 3.50 |
| 100 x 40 | 4 | 10.56 | 8.29 | 23.21 | 14.10 | 1.533 | 125.68 | 25.13 | 3.45 |
| 100 x 50 | 2 | 5.83 | 4.58 | 26.29 | 10.51 | 2.121 | 77.51 | 15.50 | 3.64 |
| 100 x 50 | 2,5 | 7.25 | 5.69 | 32.02 | 12.81 | 2.10 | 95.15 | 19.03 | 3.62 |
| 100 x 50 | 3 | 8.63 | 6.78 | 37.43 | 14.97 | 2.080 | 112.11 | 22.42 | 3.60 |
| 100 x 50 | 4 | 11.36 | 8.92 | 47.36 | 18.94 | 2.042 | 144.12 | 28.82 | 3.56 |
| 100 x 50 | 5 | 14.00 | 11.00 | 56.17 | 22.47 | 2.00 | 173.67 | 34.73 | 3.52 |
| 100 x 50 | 6 | 16.56 | 13.00 | 63.93 | 25.57 | 1.96 | 200.87 | 40.17 | 3.48 |
| 120 x 80 | 2 | 7.83 | 6.15 | 87.65 | 21.91 | 3.342 | 163.43 | 27.23 | 4.57 |

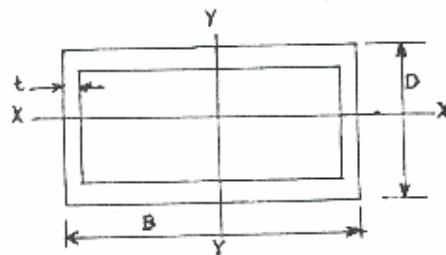


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 120 x 80 | 3 | 11.64 | 9.14 | 127.03 | 31.75 | 3.320 | 238.38 | 39.73 | 4.52 |
| 120 x 80 | 4 | 15.36 | 12.06 | 163.63 | 40.90 | 3.261 | 309.04 | 51.50 | 4.47 |
| 125 x 75 | 3 | 11.64 | 9.14 | 113.68 | 30.32 | 3.13 | 251.74 | 40.28 | 4.65 |
| 125 x 75 | 4 | 15.36 | 12.06 | 146.21 | 38.99 | 3.09 | 326.47 | 52.23 | 4.61 |
| 125 x 75 | 5 | 19.00 | 14.92 | 176.27 | 47.01 | 3.05 | 396.90 | 63.50 | 4.57 |
| 140 x 60 | 2 | 7.83 | 6.15 | 52.96 | 17.65 | 2.599 | 198.12 | 28.30 | 5.03 |
| 140 x 60 | 3 | 11.64 | 9.14 | 76.16 | 25.38 | 2.558 | 289.25 | 41.32 | 4.98 |
| 140 x 60 | 4 | 15.36 | 12.06 | 97.33 | 32.44 | 2.518 | 375.34 | 53.62 | 4.94 |
| 150 x 50 | 2 | 7.83 | 6.15 | 37.82 | 15.12 | 2.198 | 213.26 | 28.43 | 5.22 |
| 150 x 50 | 3 | 11.64 | 9.14 | 54.02 | 21.60 | 2.155 | 311.38 | 41.51 | 5.17 |
| 150 x 75 | 5 | 15.36 | 12.06 | 68.57 | 27.42 | 2.115 | 404.09 | 53.87 | 5.57 |
| 125 X 75 | 6,0 | 22.56 | 17.71 | 203.99 | 54.40 | 3.01 | 463.18 | 74.11 | 4.53 |

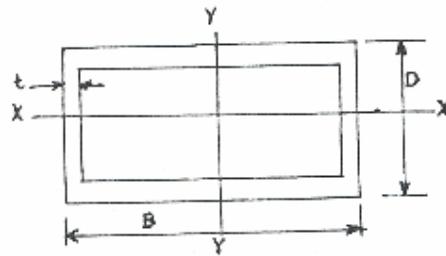


Table 5 (continued)

| Dimensions B X D mm | t, mm | A, cm ² | Mass W, kg/m | Axis X-X | | | Axis Y-Y | | |
|---------------------------|----------|-----------------------|-----------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 150 x 75 | 3.0 | 13.14 | 10.31 | 133.13 | 35.50 | 3.18 | 392.43 | 52.32 | 5.46 |
| 150 x 75 | 4.0 | 17.36 | 13.63 | 171.44 | 45.72 | 3.14 | 510.17 | 68.09 | 5.42 |
| 150 x 75 | 5.0 | 21.50 | 16.88 | 206.95 | 55.19 | 3.10 | 623.04 | 83.07 | 5.38 |
| 150 x 75 | 6.0 | 25.56 | 20.06 | 239.79 | 63.94 | 3.06 | 729.64 | 97.28 | 5.34 |
| 150 x 100 | 3.0 | 14.64 | 14.49 | 253.30 | 50.66 | 4.16 | 473.48 | 63.13 | 5.69 |
| 150 x 100 | 4.0 | 19.36 | 15.20 | 320.55 | 65.71 | 4.12 | 617.81 | 82.31 | 5.65 |
| 150 x 100 | 5.0 | 24.00 | 18.84 | 399.50 | 79.90 | 4.08 | 754.50 | 100.60 | 5.61 |
| 150 x 100 | 6.0 | 28.56 | 28.56 | 466.31 | 93.26 | 4.04 | 885.25 | 118.03 | 5.57 |
| 200 x 50 | 3.0 | 14.63 | 11.48 | 70.62 | 28.25 | 2.20 | 656.16 | 65.62 | 6.69 |
| 200 x 50 | 4.0 | 19.36 | 15.20 | 89.79 | 35.92 | 2.15 | 856.07 | 85.61 | 6.65 |
| 200 x 100 | 4.0 | 23.36 | 18.33 | 420.77 | 84.15 | 4.24 | 1240.29 | 124.63 | 7.29 |
| 200 X 100 | 6.0 | 29.0 | 22.76 | 512.42 | 102.48 | 4.16 | 1793.91 | 179.39 | 7.24 |
| 200 X 100 | 8.0 | 47.04 | 36.93 | 757.85 | 151.57 | 4.01 | 2306.10 | 230.60 | 7.00 |

Table 5 (completed)

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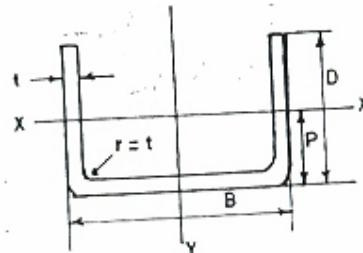


Table 6 — Dimensions and properties for cold rolled plain channel

| Size B x D mm | Thickness t, mm | Area A, cm ² | Mass W, kg/m | P, cm | Axis X-X | | | Axis Y-Y | | |
|---------------------|-----------------------|-------------------------------|--------------------|----------|-------------------------|----------------------------|---------------|----------------------------|----------------------------|---------------|
| | | | | | I_x , cm ⁴ | Z_x , cm ³ | r_x , cm | I_y , cm ⁴ | Z_y , cm ³ | r_y , cm |
| 50 x 25 | 3 | 2.70 | 2.12 | 0.77 | 1.56 | 0.90 | 0.77 | 9.45 | 3.78 | 1.89 |
| 60 x 40 | 3 | 3.90 | 3.06 | 1.30 | 6.33 | 2.34 | 1.27 | 22.05 | 7.35 | 2.38 |
| 60 x 40 | 4 | | 3.98 | 1.36 | 7.99 | 3.02 | 1.26 | 27.32 | 9.10 | 2.34 |
| 75 x 40 | 3 | 4.34 | 3.41 | 1.13 | 39.33 | 10.49 | 3.01 | 7.02 | 2.45 | 1.27 |
| 75 x 40 | 4 | 5.64 | 4.43 | 1.12 | 50.40 | 13.44 | 2.99 | 7.74 | 2.69 | 1.17 |
| 75 x 40 | 4,5 | 6.27 | 4.92 | 1.18 | 55.57 | 14.82 | 2.98 | 9.98 | 3.54 | 1.26 |
| 100 x 50 | 3 | 5.70 | 4.47 | 1.40 | 14.05 | 3.90 | 1.57 | 87.30 | 17.46 | 3.91 |
| 100 x 50 | 4 | 7.42 | 5.82 | 1.45 | 18.07 | 5.08 | 1.56 | 111.12 | 22.21 | 3.86 |
| 100 x 50 | 4,5 | 8.29 | 6.51 | 1.40 | 130.94 | 13.09 | 3.97 | 20.54 | 5.71 | 1.57 |
| 100 x 50 | 6 | 10.81 | 8.49 | 1.56 | 24.74 | 7.19 | 1.52 | 152.58 | 30.51 | 3.75 |
| 120 x 50 | 6 | 12.01 | 9.43 | 1.44 | 26.49 | 7.44 | 1.48 | 238.17 | 39.69 | 4.45 |

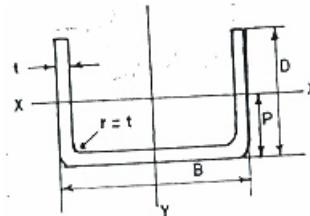


Table 6 (continued)

| Size B X D mm | Thickness t, mm | Area A, cm ² | Mass W, kg/m | P, cm | Axis X-X | | | Axis Y-Y | | |
|---------------------|-----------------------|-------------------------------|--------------------|----------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 120 X 65 | 4.5 | 10.77 | 8.45 | 1.81 | 270.99 | 43.36 | 5.02 | 45.93 | 9.79 | 2.07 |
| 125 X 65 | 6 | 14.04 | 11.02 | 1.86 | 348.52 | 55.67 | 4.98 | 59.34 | 12.79 | 2.06 |
| 150 x 50 | 6 | 13.81 | 10.84 | 1.29 | 28.53 | 7.69 | 1.43 | 412.33 | 54.97 | 5.46 |
| 150 x 70 | 4 | 10.90 | 8.61 | 1.88 | 53.03 | 10.35 | 2.19 | 376.90 | 50.25 | 5.85 |
| 150 x 70 | 6 | 16.21 | 12.72 | 1.99 | 74.71 | 14.91 | 2.15 | 536.82 | 71.57 | 5.75 |
| 150 x 72,5 | 4.5 | 12.79 | 10.04 | 2.03 | 462.48 | 61.66 | 6.01 | 72.39 | 13.23 | 2.38 |
| 150 x 75 | 6 | 16.74 | 13.14 | 2.07 | 598.23 | 79.76 | 5.98 | 93.78 | 17.27 | 2.37 |
| 200 x 75 | 4.5 | 15.04 | 11.81 | 1.64 | 906.38 | 90.64 | 7.76 | 79.05 | 13.49 | 2.29 |
| 200 x 75 | 5 | 16.63 | 13.03 | 1.72 | 1006.25 | 100.63 | 7.78 | 99.85 | 17.28 | 2.45 |
| 200 x 75 | 6 | 19.74 | 15.50 | 1.80 | 1179.31 | 117.93 | 7.73 | 102.13 | 17.92 | 2.27 |
| 200 x 100 | 6 | 22.64 | 17.77 | 2.79 | 224.98 | 31.20 | 3.15 | 1393.93 | 139.39 | 7.84 |

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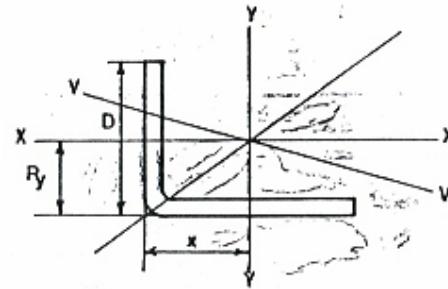


Table 7 — Dimensions and properties for cold rolled plain equal angles

| Size B X D mm | t, mm | A, cm ² | W, kg/m | P, cm | Axis X-X | | | Axis Y-Y | | Axis V-V | |
|---------------------|----------|-----------------------|------------|----------|----------------------------------|----------------------------------|-------|----------------------------------|----------------------------------|----------------------------------|---------------------|
| | | | | | I _x , cm ⁴ | Z _x , cm ³ | r, cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm ³ | r _y , cm |
| 20 X 20 | 2.5 | 0.888 | 0.69 | 1.10 | 0.33 | 0.24 | 0.614 | 0.33 | 0.23 | 0.614 | |
| 25 X 25 | 2.5 | 1.13 | 0.89 | 0.75 | 0.68 | 0.39 | 0.775 | 0.68 | 0.38 | 0.775 | |
| 25 X 25 | 3 | 1.33 | 1.05 | 0.78 | 0.80 | 0.46 | 0.773 | 0.80 | 0.46 | 0.773 | |
| 30 x 30 | 2.5 | 1.38 | 1.08 | 0.87 | 1.24 | 0.58 | 0.941 | 1.24 | 0.58 | 0.941 | |
| 30 x 30 | 3 | 1.63 | 1.28 | 0.90 | 1.43 | 0.68 | 0.935 | 1.43 | 0.68 | 0.935 | |
| 32 x 32 | 3 | 1.74 | 1.37 | 0.91 | 1.54 | 0.67 | 0.94 | 1.54 | 0.67 | 0.94 | |
| 32 x 32 | 4 | 2.24 | 1.76 | 0.898 | 1.86 | 0.81 | 0.91 | 1.86 | 0.81 | 0.91 | |
| 32 x 32 | 4.5 | 2.48 | 1.88 | 0.906 | 1.99 | 0.87 | 0.90 | 1.99 | 0.87 | 0.90 | |
| 32 x 32 | 6 | 3.12 | 2.45 | 1.03 | 2.30 | 1.06 | 0.86 | 2.30 | 1.06 | 0.86 | |

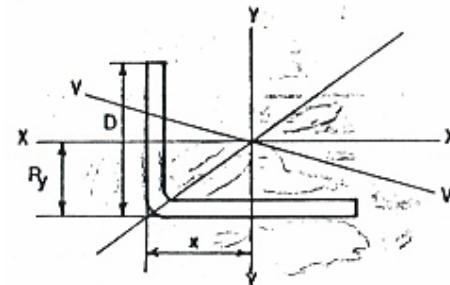


Table 7 (continued)

| Size B X D mm | t, mm | A, cm ² | W, kg/m | P, cm | Axis X-X | | | Axis Y-Y | | | Axis V-V | |
|---------------------|----------|-----------------------|------------|----------|----------------------------------|----------------------------------|-------|----------------------------------|----------------------------------|---------------------|----------------------------------|--|
| | | | | | I _x , cm ⁴ | Z _x , cm ³ | r, cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm | I _z , cm ⁴ | |
| 40 X 40 | 2.5 | 1.88 | 1.47 | 1.13 | 2.96 | 1.03 | 1.25 | 2.96 | 1.03 | 1.25 | | |
| 40 X 40 | 3 | 2.22 | 1.74 | 1.06 | 3.18 | 1.08 | 1.20 | 3.18 | 1.08 | 1.20 | | |
| 40 X 40 | 4 | 2.88 | 2.26 | 1.097 | 3.92 | 1.32 | 1.17 | 3.92 | 1.32 | 1.17 | | |
| 40 X 40 | 4.5 | 3.20 | 2.51 | 1.11 | 4.24 | 1.47 | 1.15 | 4.24 | 1.47 | 1.15 | | |
| 40 X 40 | 6 | 4.08 | 3.20 | 1.23 | 5.66 | 2.04 | 1.18 | 5.66 | 2.04 | 1.18 | | |
| 50 X 50 | 3 | 2.83 | 2.22 | 1.40 | 7.01 | 1.94 | 1.57 | 7.01 | 1.94 | 1.57 | | |
| 50 X 50 | 4 | 3.70 | 2.90 | 1.45 | 8.89 | 2.50 | 1.56 | 8.89 | 2.50 | 1.56 | | |

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Table 7 (continued)

| Size B X D mm | t, mm | A, cm ² | W, kg/m | P, cm | Axis X-X | | | Axis Y-Y | | | Axis V-V | |
|---------------------|----------|-----------------------|------------|----------|----------------------------------|----------------------------------|-------|----------------------------------|----------------------------------|---------------------|----------------------------------|--|
| | | | | | I _x , cm ⁴ | Z _x , cm ³ | r, cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm | r _x , cm ⁴ | |
| 50 X 50 | 4,4 | 4.10 | 3.22 | 1.42 | 8.91 | 2.49 | 1.47 | 8.91 | 2.49 | 1.47 | | |
| 50 X 50 | 6 | 5.28 | 4.14 | 1.48 | 12.43 | 3.53 | 1.53 | 12.43 | 3.53 | 1.53 | | |
| 60 X 60 | 4 | 4.50 | 3.53 | 1.68 | 16.01 | 3.70 | 1.88 | 16.01 | 3.70 | 1.88 | | |
| 60 X 60 | 6 | 6.53 | 5.13 | 1.80 | 22.55 | 5.37 | 1.87 | 22.55 | 5.37 | 1.87 | | |
| 65 X 65 | 4,5 | 5.45 | 4.28 | 1.79 | 19.03 | 4.04 | 1.87 | 19.03 | 4.04 | 1.87 | | |
| 65 X 65 | 6 | 7.08 | 5.56 | 1.85 | 25.90 | 5.57 | 1.91 | 25.90 | 5.57 | 1.91 | | |
| 75 X 75 | 6 | 8.69 | 6.78 | 2.09 | 46.88 | 8.67 | 2.33 | 46.88 | 8.67 | 2.33 | | |
| 90 X 90 | 6 | 10.08 | 7.91 | 2.48 | 74.42 | 11.41 | 2.72 | 74.42 | 11.41 | 2.72 | | |
| 100 X 100 | 6 | 11.30 | 8.87 | 2.80 | 112.59 | 15.59 | 3.15 | 112.28 | 15.59 | 3.15 | | |

Table 7 (completed)

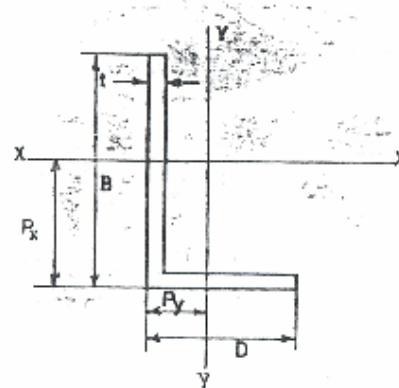


Table 8 — Dimensions and properties for cold rolled plain unequal angles

| Size B X D mm | Thickness t, mm | Area A, cm ² | Mass w, kg/m | P _x , cm | P _y , cm | Axis X-X | | | Axis Y-Y | | |
|---------------------|-----------------------|-------------------------------|--------------------|------------------------|------------------------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| | | | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 50 X 40 | 6.0 | 4.68 | 3.67 | 1.53 | 1.04 | 9.96 | 2.87 | 1.46 | 5.41 | 1.08 | 1.83 |
| 65 X 50 | 6.0 | 6.18 | 4.85 | 1.99 | 1.24 | 11.68 | 2.59 | 1.37 | 11.74 | 1.38 | 3.12 |
| 75 X 50 | 6.0 | 6.78 | 5.32 | 2.40 | 1.15 | 35.81 | 7.02 | 2.30 | 17.58 | 1.61 | 4.57 |
| 90 X 65 | 6.0 | 8.58 | 6.73 | 2.76 | 1.51 | 66.56 | 10.67 | 2.79 | 28.58 | 1.83 | 5.73 |
| 90 X 75 | 6.0 | 9.78 | 7.61 | 3.01 | 1.76 | 94.54 | 13.53 | 3.11 | 45.09 | 2.15 | 7.86 |

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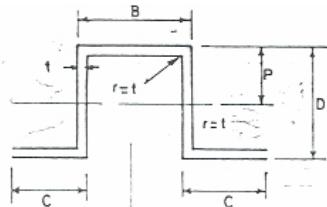


Table 9 — Dimensions and properties for cold rolled outwardly lipped channel

| Size B X D X C | | | t, mm | A, cm ² | w, kg/m | P cm | Axis X-X | | | Axis Y-Y | | |
|-------------------|----|-------|----------|-----------------------|------------|---------|----------------------------------|----------------------------------|---------------------|----------------------------------|----------------------------------|---------------------|
| D | B | D X C | | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 20 | 20 | 15 | 1.5 | 1.202 | 0.94 | 1.116 | 0.676 | 0.606 | 1.750 | 1.726 | 1.726 | 1.195 |
| 20 | 20 | 15 | 2 | 1.536 | 1.20 | 1.118 | 0.791 | 0.707 | 0.720 | 2.130 | 0.926 | 1.180 |
| 25 | 25 | 15 | 1.5 | 1.427 | 1.12 | 1.305 | 1.290 | 0.989 | 0.951 | 2.654 | 1.020 | 1.363 |
| 25 | 25 | 15 | 2 | 1.836 | 1.44 | 1.313 | 1.553 | 0.920 | 1.80 | 3.300 | 1.290 | 1.340 |
| 40 | 25 | 15 | 1.5 | 1.877 | 1.47 | 2.077 | 4.047 | 1.950 | 1.468 | 3.276 | 1.260 | 1.321 |
| 40 | 25 | 15 | 2 | 2.438 | 1.91 | 2.078 | 5.022 | 2.410 | 1.435 | 4.090 | 1.600 | 1.295 |
| 50 | 50 | 20 | 1.5 | 2.702 | 2.12 | 2.366 | 10.08 | 3.82 | 1.932 | 16.45 | 3.78 | 2.467 |
| 50 | 50 | 20 | 2 | 3.536 | 2.77 | 2.365 | 12.80 | 3.85 | 1.900 | 21.08 | 4.90 | 2.442 |
| 75 | 50 | 20 | 2 | 4.736 | 3.71 | 3.50 | 36.97 | 9.85 | 2.792 | 31.01 | 6.46 | 2.559 |
| 75 | 50 | 20 | 2.5 | 5.839 | 4.58 | 3.750 | 44.57 | 11.88 | 2.762 | 37.43 | 7.88 | 2.532 |
| 75 | 50 | 20 | 3 | 6.908 | 5.42 | 3.750 | 51.55 | 13.74 | 2.731 | 43.40 | 9.23 | 2.507 |
| 100 | 50 | 30 | 2 | 5.30 | 4.66 | 5.166 | 79.36 | 15.36 | 3.658 | 41.85 | 7.89 | 2.657 |
| 100 | 50 | 30 | 2.5 | 7.330 | 5.76 | 5.167 | 96.40 | 18.65 | 3.626 | 50.74 | 9.66 | 2.631 |
| 100 | 50 | 30 | 3 | 8.700 | 5.28 | 5.168 | 112.43 | 21.75 | 3.595 | 59.06 | 11.35 | 2.605 |

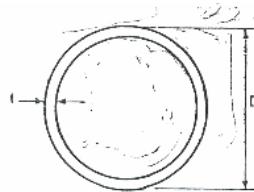


Table 10 — Dimensions and properties for cold rolled circular tubes

| Dimensions D mm | t, mm | A, cm ² | Mass W, kg/m | I, cm ⁴ | Z, cm ³ | r, cm |
|-----------------------|----------|-----------------------|-----------------|-----------------------|-----------------------|----------|
| 16 | 1.2 | 0.56 | 0.44 | 0.153 | 0.192 | 0.52 |
| 16 | 1.5 | 0.68 | 0.54 | 0.181 | 0.226 | 0.52 |
| 16 | 2 | 0.87 | 0.69 | 0.219 | 0.274 | 0.50 |
| 19 | 1.2 | 0.67 | 0.53 | 0.267 | 0.281 | 0.63 |
| 19 | 1.5 | 0.82 | 0.65 | 0.318 | 0.334 | 0.63 |
| 19 | 2 | 1.07 | 0.84 | 0.391 | 0.411 | 0.60 |
| 22 | 1.2 | 0.78 | 0.62 | 0.425 | 0.386 | 0.74 |
| 22 | 1.5 | 0.96 | 0.76 | 0.510 | 0.463 | 0.73 |
| 22 | 2 | 1.26 | 0.99 | 0.634 | 0.577 | 0.71 |
| 25 | 1.2 | 0.89 | 0.70 | 0.637 | 0.509 | 0.84 |
| 25 | 1.5 | 1.10 | 0.87 | 0.767 | 0.614 | 0.83 |
| 22 | 2 | 1.43 | 1.13 | 0.963 | 0.770 | 0.82 |

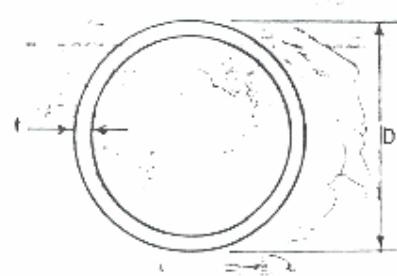
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Table 10 (cont'd)

| Dimensions D mm | t, mm | A, cm ² | W, kg/m | I, cm ⁴ | Z, cm ³ | r, cm |
|-----------------------|----------|-----------------------|------------|-----------------------|-----------------------|----------|
| 26.75 | 1.2 | 0.95 | 0.75 | 0.787 | 0.592 | 0.91 |
| 26.75 | 1.5 | 1.18 | 0.93 | 0.951 | 0.715 | 0.90 |
| 26.75 | 2 | 1.55 | 1.22 | 1.190 | 0.896 | 0.88 |
| 28.70 | 1.2 | 1.04 | 0.82 | 0.98 | 0.68 | 0.97 |
| 28.70 | 1.5 | 1.28 | 1.01 | 1.18 | 0.83 | 0.96 |
| 28.70 | 2 | 1.68 | 1.32 | 1.50 | 1.04 | 0.94 |
| 32 | 1.2 | 1.15 | 0.91 | 1.37 | 0.86 | 1.09 |
| 32 | 1.5 | 1.43 | 1.13 | 1.67 | 1.04 | 1.08 |
| 32 | 2 | 1.88 | 1.48 | 2.13 | 1.33 | 1.05 |
| 32 | 3 | 2.72 | 2.14 | 2.90 | 1.33 | 1.03 |

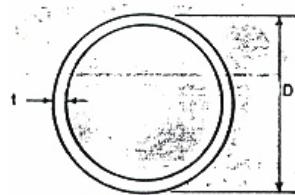


Table 10 (cont'd)

| Dimensions D mm | t, mm | A, cm ² | W, kg/m | I, cm ⁴ | Z, cm ³ | r, cm |
|-----------------------|----------|-----------------------|------------|-----------------------|-----------------------|----------|
| 38.70 | 1.2 | 1.42 | 1.12 | 2.48 | 1.28 | 1.32 |
| 38.70 | 1.5 | 1.75 | 1.38 | 3.03 | 1.57 | 1.31 |
| 38.70 | 2 | 2.31 | 1.82 | 3.89 | 2.01 | 1.30 |
| 38.70 | 3 | 3.37 | 2.65 | 5.39 | 2.79 | 1.26 |
| 42.25 | 1.2 | 1.54 | 1.21 | 3.26 | 1.54 | 1.47 |
| 42.25 | 1.5 | 1.96 | 1.54 | 3.99 | 1.89 | 1.42 |
| 42.25 | 2 | 2.52 | 1.98 | 5.13 | 2.43 | 1.42 |
| 42.25 | 3 | 3.69 | 2.90 | 7.16 | 3.39 | 1.39 |
| 48.25 | 1.2 | 1.77 | 1.39 | 4.91 | 2.03 | 1.67 |
| 48.25 | 1.5 | 2.20 | 1.73 | 6.02 | 2.49 | 1.65 |
| 48.25 | 2 | 2.90 | 2.28 | 7.78 | 3.22 | 1.64 |
| 48.25 | 3 | 4.26 | 3.35 | 10.96 | 4.54 | 1.60 |

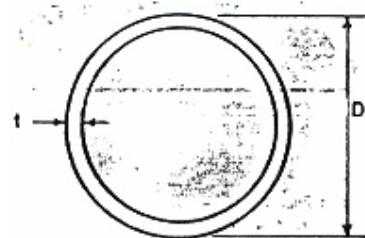
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Table 10 (cont'd)

| Dimensions D mm | t, mm | A, cm ² | W, kg/m | I, cm ⁴ | Z, cm ³ | r, cm |
|-----------------------|----------|-----------------------|------------|-----------------------|-----------------------|----------|
| 51 | 1.2 | 1.87 | 1.47 | 5.82 | 2.28 | 1.76 |
| 51 | 1.5 | 2.33 | 1.83 | 7.15 | 2.80 | 1.75 |
| 51 | 2 | 3.08 | 2.42 | 9.25 | 3.63 | 1.73 |
| 51 | 3 | 4.52 | 3.55 | 13.08 | 5.13 | 1.70 |
| 57 | 1.2 | 2.10 | 1.65 | 8.19 | 2.87 | 1.97 |
| 57 | 1.5 | 2.61 | 2.05 | 10.07 | 3.53 | 1.96 |
| 57 | 2 | 3.50 | 2.75 | 13.08 | 4.59 | 1.93 |
| 57 | 3 | 5.09 | 4.00 | 18.61 | 6.53 | 1.91 |
| 60 | 1.2 | 2.21 | 1.74 | 9.58 | 3.19 | 2.08 |
| 60 | 1.5 | 2.75 | 2.16 | 11.80 | 3.93 | 2.07 |
| 60 | 2 | 3.64 | 2.86 | 15.34 | 5.11 | 2.06 |
| 60 | 3 | 5.37 | 4.22 | 21.88 | 7.29 | 2.02 |

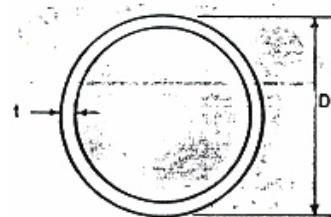


Table 10 (cont'd)

| Dimensions D mm | t, mm | A, cm ² | W, kg/m | I, cm ⁴ | Z, cm ³ | r, cm |
|-----------------------|----------|-----------------------|------------|-----------------------|-----------------------|----------|
| 75.50 | 4 | 8.92 | 7.01 | 57.61 | 15.28 | 2.54 |
| 75.50 | 4.50 | 7.90 | 10.1 | 64.8 | 2.53 | 1.71 |
| 89 | 2 | 5.46 | 4.29 | 51.75 | 11.63 | 3.07 |
| 89 | 3 | 8.10 | 6.36 | 75.04 | 16.86 | 3.04 |
| 89 | 3.25 | 6.81 | 8.72 | 79.7 | 3.02 | 1.80 |
| 89 | - | 10.67 | 8.88 | 96.70 | 21.73 | 3.01 |
| 89 | 4.85 | 10.1 | 12.7 | 112 | 2.977 | 2.54 |
| 114.30 | 3 | 10.50 | 8.25 | 162.59 | 28.47 | 3.94 |
| 114.30 | 3.65 | 9.89 | 12.6 | 192 | 3.90 | 3.37 |
| 114.30 | - | 13.87 | 10.89 | 211.11 | 36.97 | 3.91 |
| 114.30 | 4.50 | 12.1 | 15.4 | 231 | 3.87 | 4.07 |

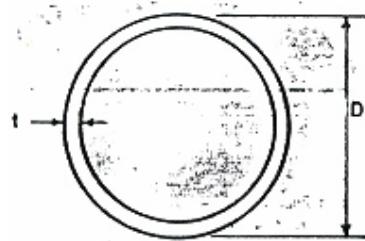
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Table 10 (cont'd)

| Dimensions D mm | t, mm | A, cm ² | W, kg/m | I, cm ⁴ | Z, cm ³ | r, cm |
|-----------------------|----------|-----------------------|------------|-----------------------|-----------------------|----------|
| 114.30 | 5.40 | 14.4 | 18.3 | 271 | 3.84 | 4.77 |
| 140 | 4.85 | 16.2 | 20.5 | 467 | 4.77 | 6.69 |
| 140 | 5.40 | 17.8 | 22.7 | 514 | 4.75 | 7.36 |
| 152 | 3 | 13.84 | 10.87 | 374.47 | 49.93 | 5.26 |
| 152 | 4 | 18.34 | 14.40 | 489.34 | 65.24 | 5.17 |
| 165 | 4.85 | 19.2 | 24.4 | 784 | 5.66 | 9.50 |
| 165 | 5.40 | 21.2 | 27.0 | 864 | 5.64 | 10.4 |
| 216 | 5.00 | 26.0 | 33.1 | 1852 | 7.47 | 17.1 |
| 216 | 6.00 | 31.1 | 39.1 | 2192 | 7.44 | 20.2 |
| 216 | 7.00 | 36.1 | 40.0 | 2521 | 7.40 | 23.3 |

Table 10 (completed)

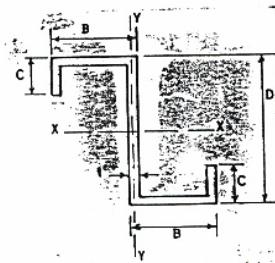


Table 11 – Zed purlins

| Dimensions | | | | A, cm ² | w, kg/m | Axis X-X | | | Axis Y-Y | | | Imperial inch equivalents | | |
|------------|-------|------|-----|-----------------------|------------|----------------------------------|----------------------------------|------------------------|-------------------------------------|-------------------------------------|------------------------|---------------------------|----|----|
| B | D | C | t | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm | D | B | S |
| 50.8 | 95.25 | 22.2 | 2.0 | 4.52 | 3.52 | 68.94 | 13.42 | 3.76 | 33.87 | 6.80 | 2.73 | 3 $\frac{3}{4}$ " | 2" | 14 |
| 50.8 | 101.6 | 12.7 | 2.0 | 4.26 | 3.34 | 70.18 | 13.81 | 4.05 | 31.45 | 4.98 | 2.41 | 4" | 2" | 14 |
| 50.8 | 114.6 | 22.2 | 2.0 | 4.90 | 3.85 | 98.24 | 17.19 | 4.47 | 33.87 | 6.80 | 2.62 | 4 $\frac{1}{2}$ " | 2" | 14 |
| 50.8 | 127.0 | 22.2 | 2.0 | 5.16 | 4.05 | 125.99 | 19.84 | 4.94 | 33.87 | 6.80 | 2.56 | 5" | 2" | 14 |
| 50.8 | 139.7 | 22.2 | 2.0 | 5.40 | 4.24 | 157.90 | 22.60 | 5.40 | 33.87 | 6.80 | 2.50 | 5 $\frac{1}{2}$ " | 2" | 14 |
| 50.8 | 152.4 | 22.2 | 2.0 | 5.66 | 4.44 | 194.14 | 25.47 | 5.85 | 33.87 | 6.80 | 2.44 | 6" | 2" | 14 |

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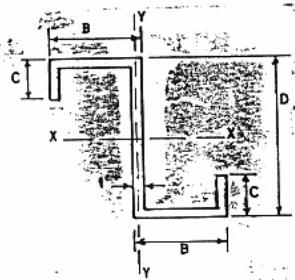


Table 11 (cont'd)

| Dimensions | | | | A, cm ² | w, kg/m | Axis X-X | | | Axis Y-Y | | | Imperial inch equivalents | | |
|------------|-------|------|-----|-----------------------|------------|----------------------------------|----------------------------------|------------------------|-------------------------------------|-------------------------------------|------------------------|---------------------------|------------------|----|
| B | D | C | t | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm | D | B | S |
| 50.8 | 165.1 | 22.2 | 2.0 | 5.92 | 4.65 | 234.96 | 28.46 | 6.30 | 33.87 | 6.80 | 2.39 | $6\frac{1}{2}$ " | 2" | 14 |
| 50.8 | 165.1 | 22.2 | 2.5 | 7.25 | 5.94 | 278.7 | 33.78 | 6.43 | 33.87 | 7.59 | 2.33 | $6\frac{1}{2}$ " | 2" | 12 |
| 63.5 | 165.1 | 22.2 | 2.5 | 7.91 | 6.14 | 301.50 | 36.54 | 6.50 | 36.79 | 10.91 | 2.31 | $6\frac{1}{2}$ " | $2\frac{1}{2}$ " | 12 |
| 50.8 | 177.8 | 22.2 | 2.5 | 7.59 | 5.90 | 340.73 | 38.32 | 6.72 | 37.63 | 7.59 | 2.23 | 7" | 2" | 12 |
| 63.5 | 177.8 | 22.2 | 2.5 | 8.23 | 6.40 | 389.51 | 43.81 | 6.90 | 67.91 | 10.91 | 2.88 | 7" | 2" | 12 |
| 76.2 | 177.8 | 22.2 | 3.0 | 10.42 | 8.17 | 516.52 | 58.10 | 7.02 | 128.58 | 17.21 | 3.50 | 7" | 3" | 10 |
| 76.2 | 254.0 | 22.2 | 3.0 | 13.12 | 10.30 | 123.6 | 97.38 | 9.70 | 148.99 | 19.95 | 3.37 | 10" | 3" | 10 |

Table 11 (completed)

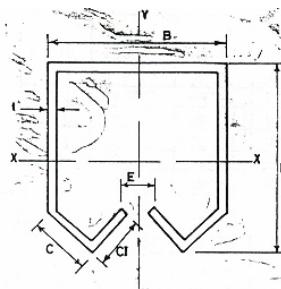


Table 12 — Dimensions and properties for cold rolled mono rail sections

| Dimensions | | | | | t, mm | A, cm ² | w, kg/ m | Axis X-X | | | Axis Y-Y | | |
|------------|----|------|----------------|----------|----------|-----------------------|----------------|-------------------------------------|-------------------------------------|------------------------|-------------------------------------|-------------------------------------|------------------------|
| B | D | C | C ₁ | E | | | | I _x , cm ⁴ | Z _x , cm ³ | r _x , cm | I _y , cm ⁴ | Z _y , cm ³ | r _y , cm |
| 57 | 67 | 15 | 10 | 13. 7 | 3 | 6.27 | 4.92 | 34.34 | 9.1 9 | 2.3 4 | 31.63 | 11.10 | 2.25 |
| 42 | 54 | 12.5 | 8 | 8 | 2, 5 | 3.97 | 3.12 | 14.35 | 4.6 4 | 1.9 0 | 11.11 | 5.29 | 1.67 |
| 33 | 34 | 9.5 | 6.5 | 10. 5 | 2 | 2.22 | 1.74 | 3.22 | 1.6 5 | 1.2 0 | 3.67 | 2.22 | 1.28 |

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